FOREST INSECT CONDITIONS ON THE SALMON NATIONAL FOREST 1967

The following is an evaluation of the spruce budworm infestation on the Salmon National Forest in 1967. Material for this report was compiled from previous evaluation reports, from an analysis of aerial survey data, and from special larval defoliation and egg mass surveys made on the Forest this year.

The spruce budworm continues to be the most serious insect problem on the Forest this year. Ips beetles in thinning areas remain a threat to standing trees, but this was covered in a previous report (memorandum dated August 18, 1967). Briefly, then, spruce budworm populations continue to infest Douglas-fir and true fir stands but at a very low level. No heavy or moderate defoliation has occurred, consequently, trees with a history of repeated heavy feeding have experienced an additional year of recovery. An analysis of egg mass counts indicate a declining trend and an even lower level of activity for 1968. A more detailed discussion of the spruce budworm situation follows:

Spruce budworm, Choristoneura occidentalis

The spruce budworm has been the principal enemy of Douglas-fir and true fir on portions of the Salmon National Forest since 1952, the year the present outbreak began. In ensuing years, budworm activity increased until a momentary respite was achieved in 1956 by aerial spraying. The infestation was further impeded in 1957, again by aerial spraying, but budworm populations recovered rapidly, gained momentum, and by 1964 covered more than a million and a quarter acres. That year, much needed foliar protection was obtained by aerially spraying more than one-half million acres of Douglas-fir and true fir with DDT. Since then, natural control factors took over and have reduced the extent of noticeable defoliation from more than 700,000 acres in 1965 to less than 26,000 acres in 1967. Following is a tabulation of infested acreage by damage classes, as determined from aerial surveys, during the last five years.

Year	Infestation Intensity			Total
	Light (Acres)	Medium (Acres)	Heavy (Acres)	(Acres)
1963	89,920	107,910	679,348	877,178
1964	64,000	320,000	958,000	1,342,000
1965	296,500	77,400	336,000	709,900
1966	495,700	25,900	-	521,600
1967	25,600	-	-	25,600

What is perhaps as significant as the tremendous reduction in defoliated area, is the complete absence of either moderate or heavy defoliation. Trees in areas that suffered repeated damage, year after year, were finally relieved of heavy feeding pressure in 1966, and were given an opportunity for added recovery in 1967. The only areas which exhibited defoliation heavy enough to be observed from the air occurred in scattered patches throughout the upper reaches of Panther Creek and in Sheep and Brush Creeks in the Idaho Primitive area. These areas of light defoliation are shown on the attached map.

Areas where the heaviest defoliation was expected were visited several times during the summer as a followup on last year's predictions, and to determine the current population level. Examinations were made in June and again during August in Jesse, Agency, Derian, and McDivitt Creeks--areas that had a repeated history of heavy defoliation and contained sufficiently high egg populations to have sustained moderate defoliation in 1967. Only negligible larval populations were found and no trees in either area received over five percent defoliation of the new growth. This exceptionally light activity was substantiated later in the summer at the end of the feeding period, for no defoliation was noticed or recorded by aerial observers.

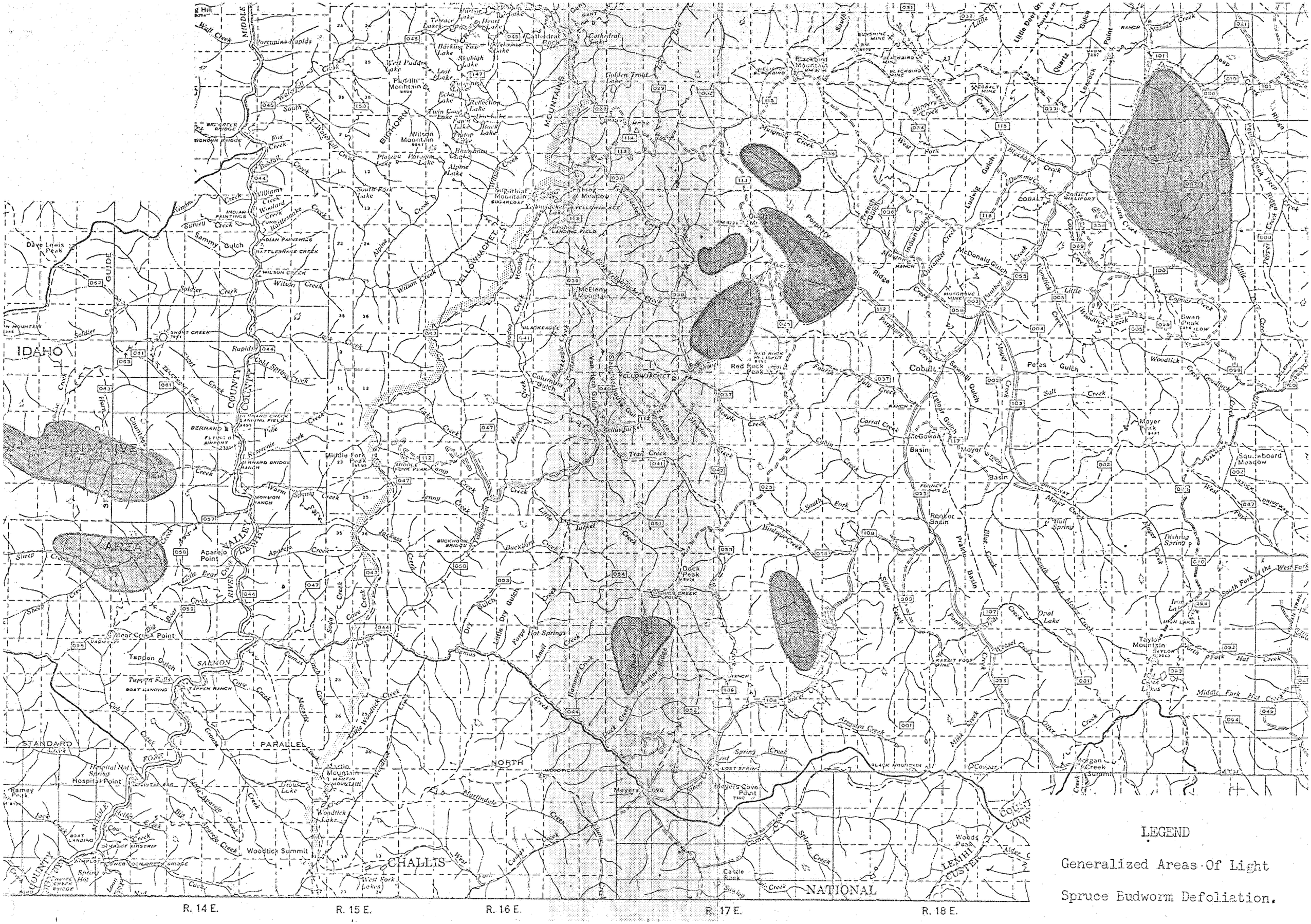
Relatively accurate predictions as to the forthcoming population level and subsequent defoliation are made from systematic sampling of Douglas-fir foliage for the presence and relative abundance of 1967 egg masses. Sample plots were established in and near known infestations to record population trends in some areas and to detect budworm buildups in others. Because of the current low populations and the scarcity of defoliated areas, only nine egg mass plots were established on the Forest this year, compared to nineteen plots in 1966. A comparison of this year's egg mass population with last, the intensity of defoliation that can be expected in 1968, and trend, follows:

Area	Egg Masses/1000 sq. in. 1966 (No.)	1967 (No.)	Expected Defoliation 1968 (Percent)	Trend
Porphyry Creek	0.0	0.04	<15	Static
Yellow Jacket Creek		0.03	<15	Static
Williams Creek	1.7	0.51	<15	Down
Dahlonega Creek	0.2	0.36	<15	Static
Derian Creek	11.2	3.10	15-25	Down
S. Fork Iron Creek	1.0	1.10	<15	Static
Hayden Creek	4.8	0.71	<15	Down
Moyer Creek	0.7	0.07	<15	Static
Spring Creek	0.0	0.06	<15	Static

These data show a low population status and a continuing downward trend for most of the Salmon infestation in 1968. Similar decreasing trends have been recorded and are predicted for all spruce budworm infestations in southern Idaho (Challis, Payette, Boise, and Sawtooth National Forests). In the Salmon infestation, all areas will continue to receive a much needed respite from budworm feeding in 1968, and no increase in the current low population level is expected, at least not in the immediate future. However, one of many possible factors that could contribute to a population resurgence, although it may not be apparent for several years, is the presence, or simply the overabundance of staminate flowers. In 1967 in the Salmon National Forest and elsewhere throughout most of the Region, prolific flowering occurred, especially on Douglas-fir. Research has shown that, generally, among other things, budworm larval development is more rapid on flowering trees than nonflowering trees and that early developing budworm have a high fecundity potential. The faster larvae develop the less exposed they are to natural enemies and other controlling factors. Admittedly, this is somewhat speculative at this time, but it is nonetheless one of many factors that could reverse the existing downward trend, and lead to a population buildup sometime in the future. These and other factors will be kept under surveillance during subsequent evaluation surveys.

William H. Klein

WILLIAM H. KLEIN


IDAHO
SALMON
CHALLIS
NATIONAL
AREA
Cobalt
Red Rock Peak
McGowan Basin
Ranger Basin
Meyers Cove
Woodtick Summit
Woodtick Lakes
Yellowjacket Creek
Yellowjacket Meadow
Blackbird Mountain
McGowan Peak
Meyer Peak
Taylor Mountain
Dock Peak
Woods Peak
Wilson Mountain
McGeley Mountain
Martin Mountain
Hospital Hot Spring
Tappan Falls
Tappan Ranch
Tappan Gulch
Cow Creek
Cougar Creek
Cougar Point
Wilson Creek
Indian Creek
Rattlesnake Creek
Indian Paintings
Sammy Gulch
Soldier Creek
Short Creek
Cold Spring Creek
Bernard Creek
Bernard Airport
Bernard Bridge
Middle Fork Peak
Middle Fork Ranger Station
Warm Spring Creek
Aparejo Point
Aparejo Creek
Little Bear Creek
Big Bear Creek
Sheep Creek
Big Creek Bridge
Big Creek Point
Buckhorn Bridge
Buckhorn Creek
Jenny Creek
Jackass Creek
Little Jackass Creek
Dry Gulch
Little Dry Gulch
Forge Hot Springs
Annis Creek
Flannigan Creek
Duck Creek
Butler Ridge
Camas Creek
Little Woodtick Creek
Woodtick Creek
Martindale Creek
Meyers Cove Point
Lost Spring Creek
Lost Spring
Arapaho Creek
Spruce Creek
Castle Peak
Castle Creek
Porphyry Ridge
Porphyry Creek
Blackbird Creek
Slippery Creek
Muligan Creek
Dummy Creek
Ludwig Gulch
French Gulch
Indian Gulch
McDonald Gulch
Panther Creek
Woodtick Creek
Little Woodtick Creek
Peters Gulch
Salt Creek
Corral Creek
Cuba Creek
Sawmill Gulch
Telephone Gulch
Copper Creek
Squaboard Meadow
Dishrag Spring
Opal Lake
Rabbit Foot Creek
Prairie Basin
Silver Creek
Arapaho Peak
Morgan Creek Summit
Middle Fork Hat Creek
South Fork Hat Creek
Iron Lake
Taylor Lake
Lake Creek
Lake Creek Ridge
Deep Creek
Little Deep Creek
Quartz Gulch
Loreock Creek
Napias Creek
Napias Point
Napias Ranch
Sunshine Mine
Blackbird Mine
Cobalt Mine
Musgrove Mine
Rabbit Foot Mine
Telephone Line
Ranger Station
Airport
Landing Field
Boat Landing
Ferry
Lookout
Ranch
Bridge
Campground
Trail
Pass
Lake
Creek
Gulch
Ridge
Point
Peak
Mountain
Mountains
Basin
Meadow
Spring
Springs
Hot Springs
Fork
South Fork
West Fork
Middle Fork
North Fork
Summit
Falls
Rapids
Cove